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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,794	04/19/2001	Ying Chen	ARC20000088US1	2559

7590

06/28/2005

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EXAMINER

NANO, SARGON N

ART UNIT	PAPER NUMBER
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2157

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/839,794

Applicant(s)

CHEN ET AL.

Examiner

Sargon N. Nano

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 8, 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1 - 42 is/are pending in the application.
- 4a) Of the above claim(s) 15 - 42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Response to Amendment

1. This action is responsive to amendment filed on April 5, 2005. Claims 1 – 14 were elected for examination. Applicant elected group one but only presented claims 1- 14 for examination with traverse. The restriction is made final.

Response to Arguments

2. The inventions are distinct, each from the other because of the following reasons: Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Group II has a master storage cluster wherein the storage cluster is designated as the master node by assigning an IP address. The subcombination has separate utility such as assigning master storage cluster wherein the storage cluster is designated as the master node by assigning an IP address. This restriction is made final.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 – 14 are rejected under 35 U.S.C. 102(e) as being unpatentable over Adelman U.S. Patent No. 6,006,259.

As to claim 1, Adelman teaches a method of providing a single system image in a clustered environment comprising:

assigning an internet protocol (IP) address as a cluster IP address (see col.9, lines 22 - 30 , Adelman discloses the assignment of IP address to a cluster commander);

binding the cluster IP address to a node in a cluster (see col. 9, lines 22 – 30, Adelman discloses the binding of a cluster IP address to cluster members) ;

receiving a client request directed to the cluster IP address(see col. lines 3 – 29, Adelman discloses messages received by the cluster);

multicasting the request to all nodes in the cluster (see col. 9 lines 24 - 47 Adelman discloses multicasting Mac address to all the nodes in a cluster)

each node in the cluster filtering the request based on a dynamically adjustable workload distribution function on each node, wherein the function is configured to allow a single node to process the client request (see col.9, Adelman discloses filtering the

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process by allowing cluster members to tell whether the incoming message must be processed by it) ;

a single node in a cluster obtaining a response to the request (see col.9, Adelman discloses filtering the process by allowing cluster members to tell whether the incoming message must be processed by it) ;

the single node inserting a cluster media access control (MAC) address into the response (see col. 9 lines 59 – col. 10 line 11 Adelman discloses MAC address of each cluster member) ;

sending the response from the single node to the client (see col. 8 lines 55- 67 , Adelman discloses the notification that a request is accepted).

As to claim 2, Adelman teaches the method of claim 1 further comprising informing other nodes in the cluster of the cluster IP address and a media access control (MAC) address associated with the node that is bound to the cluster IP address (see col.9 lines 23 – 49).

As to claim 3, Adelman teaches the method comprising:

a) forming a virtual local area network (VLAN) comprising :

(1) a master node wherein the master node is the node that is bound to the cluster IP address (see col.9 , lines 23 - 49) ;

(2) at least one network interface for each node in the cluster (see col.9, lines 50 - 65); and

(b) wherein multicasting comprises packet forwarding and processing the client request from the master node to the other nodes in the VLAN (see col. 9 , lines 50 – 58).

As to claim 4 Adelman teaches the method of claim 1 further comprising:
forming a multicasting group comprising all of the cluster nodes; and wherein the multicasting comprises automatically multicasting the request to all of the cluster nodes in the multicasting group (see col.9, lines 23 – 49) .

As to claim 5, Adelman teaches the method 4 wherein the multicasting group is formed by setting the MAC addresses of network interface cards of nodes in the cluster to be a multicast MAC address (see col.9, lines 23 – 49) .

As to claim 6, Adelman teaches the method of wherein the MAC addresses are set by setting a first bit of a first byte to a certain value (see col. 9 line 50 – col. 10 line 11).

As to claim 7, Adelman teaches the method wherein the workload distribution function is installed in a driver on each node in the cluster (see col. 9 line 50 – col. 10 line 11).

As to claim 8, Adelman teaches the method of claim 1 wherein the workload distribution function filters the client request based on workload distribution and whether a packet header of the client request indicates that destination MAC and IP addresses are the cluster IP and cluster MAC addresses (see col.9, lines 23 – 49) .

As to claim 9, Adelman teaches the method wherein the response is sent from the single node to the client without multicasting (see col.9, lines 23 – 49).

As to claim 10, Adelman teaches the method wherein the workload distribution function distributes the workload by moding a source IP address with a number of nodes in the cluster (see col. 9 line 50 – col. 10 line 11).

As to claim 11, Adelman the method of claim 1 wherein the workload distribution function distributes the workload by:

representing a total workload observed by the cluster as a bitmap with a number of bits k (see col. 9 line 50 – col. 10 line 11).

obtaining a bit m by moding a source IP address of the client by the number of bits k (see col. 9 line 50 – col. 10 line 11).

; and

assigning the client request to a cluster node that has a specified value at bit m (see col. 9 line 50 – col. 10 line 11).

As to claim 12, Adelman teaches the method the workload distribution function distributes the workload based on workload statistics that are periodically collected by at least one cluster node (see col. 6, lines 4 – 10, col. 6, lines 40 – 47 and fig. 3A, Adelman teaches the management of all devices in a single cluster and the facilitation of exchange management information among network devices).

As to claim 13, Adelman teaches the method wherein cluster nodes periodically exchange workload statistics information (see col.8, lines 31 – 49)

As to claim 14, Adelman teaches the method further comprising:
adjusting a number of nodes in the cluster (see col.8 lines 31 - 54) ;

recomputing a workload distribution based on the number of nodes in the cluster(see col.8 lines 31 - 54); and
redistributing the workload among nodes in the cluster based on the recomputation (see col.8 lines 31 - 54).

Applicant's amendment filed on 12/31/2004 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sargon N. Nano whose telephone number is (571) 272-4007. The examiner can normally be reached on Monday – Friday from 8:30 – 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sargon Nano
6/23/05


ZARNI MAUNG
SUPERVISORY PATENT EXAMINER